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## Thomas Chalmers, vitamin C and the common cold

Kay Dickersin and Frances Chalmers<sup>1</sup> wrote that Thomas Chalmers 'contributed substantially to the wave of meta-analyses in medicine which took off during the late 1970s and 1980s'. Chalmers' meta-analysis on vitamin C and the common cold<sup>2</sup> was mentioned as an example of the studies that provided statistically more robust estimates of treatment effects, but that is an unfortunate example.

In his 1975 meta-analysis, Thomas Chalmers calculated of seven placebo-controlled trials that common cold episodes were  $0.11 \pm 0.24$  (SE) days shorter for the vitamin C groups than for the placebo groups.<sup>2</sup>

I showed in 1995 that in some cases Chalmers presented data that were inconsistent with the original data. Chalmers also made errors in the calculations and ignored the doses, and his selection of trials was inconsistent.<sup>3</sup> I analysed the studies Chalmers had identified for which  $\geq 1$  g/d of vitamin C had been used and calculated that common cold episodes were  $0.93 \pm 0.22$  (SE) days shorter in the vitamin C groups. Another measure of the effect was a  $21\% \pm 3\%$  (SE) reduction in the cold duration.<sup>3</sup>

Thomas Chalmers speculated that the benefit of vitamin C seen in some trials might be explained by the placebo effect.<sup>2</sup> His suggestion was based on the Karlowski et al.'s trial,<sup>4</sup> for which Chalmers was the principal investigator and about which he stated in 1996: 'I am more proud of it than almost any other that I have published'.<sup>5</sup> I showed in 1996 that the Karlowski trial was erroneously analysed, however.<sup>5</sup>

Chalmers' meta-analysis and Karlowski's trial largely quelled interest in vitamin C, and few trials have been carried out since the late 1970s.<sup>6</sup> In any case, there is now very strong evidence that  $\geq 1$  g/d of vitamin C shortens the mean duration of colds in children by 18% and in adults by 8%.<sup>6</sup>

### Declarations

**Competing interests:** None declared

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